

ART. VII.—PERSISTENCE THROUGH LIFE OF THE SOMATIC ELEMENTS.

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PHYSICIANS, and physiologists in general, have so long taught that our bodies are continually undergoing a species of physiological decay, transformation and renewal, that even the laity have come to consider it as an established fact that not a single particle of matter which now enters into the composition of their frames existed there "seven years" ago.

Such expressions as "disintegration of the tissues," "molecular transformation," "tissue metamorphosis," "destructive assimilation," are constantly before our eyes in our text-books and medical periodicals, and the medical mind has become so saturated and imbued with the teaching herein indicated, that the propounding of antagonistic opinions will be sneered at as a rank heresy, and the holder of such immediately diagnosed as in a profound state of confirmed dementia. That it may not be thought that I am exaggerating the present teaching of physiologists on this matter, I quote from Flint, Jr., the following: "In the organism of animals every part is continually undergoing what may be called physiological decay; the organic nitrogenized principles are constantly being transformed into effete matter. This process of molecular change is a necessary and inevitable condition of life."

Dalton gives an approximate idea of the rapidity with which these changes take place in the following words: "The total quantity of material introduced and discharged within a given time, forms a measure of the rapidity with which the internal changes of nutrition and metamorphosis go on in the animal system. Rather more than five per cent. of the entire bodily weight is absorbed and discharged daily by the healthy adult human subject; and, for a man having the average weight of 65 kilogrammes, a quantity of material equal to the weight of

gaged there must be decomposition; that in the production of every functional act, an equivalent amount of organized tissue is used up, and goes to add to the general mass of excrementitious substance. Herein is the mistake. The decomposition does not take place in the integral structure of the cell, but in the nutritious pabulum which at the time being exists in it, by a process which may be easiest described as an elective catalytic action. It is this nutritious pabulum which constitutes the characteristic excrementitious substances, after it has been acted on by the cells, and which varies according to the character of the cells with which it comes in contact; for example, cholesterine in the nervous system, creatin in the muscular. A great part, of course, which has not been affected by the chemico-vital action of the cells, and is still in a condition for subserving the purposes of nutrition, is returned by the lymphatic system to again reënter the circulation. The cell has the power of generating from this decomposition which takes place *within* its substance—but not *of* its substance—the function peculiar to it, whether it be the elaboration of a drop of bile, or the recording on memory's page of a newly arrived fact. This theory does not do away with the established views of atomic and molecular motion as the cause of animal heat. It admits of a cyclosis of the protoplasmic molecules within the cell, for in the absence of motion there is no life. Herbert Spencer comes near my idea when he talks of "molecular changes that are not destructive and are probably isomeric."

"Much as there is here of hypothesis, the indirect evidence makes it probable that if this is not the true interpretation, the true interpretation is analogous to it." (Spencer.) A good theory is better than a bad fact.